

# The FCC and the Unregulation of the Internet

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## Executive Summary

- The Internet is becoming the most important communications medium in history with the potential to transform personal, social, economic and political behavior. The typical American family gains an incredible amount of value from its \$20 per month Internet account, including such services as investing, travel planning, homework research, email communications, and shopping, among others.
- The Internet Economy generated over \$300 billion in revenue in the U.S. last year and is rapidly changing the way America does business. Nearly one third of the nation's households are regular Internet users.
- The success of the Internet has not been an accidental development. Market forces have driven the Internet's growth, and the FCC has had an important role to play in creating a deregulatory environment in which the Internet could flourish. This paper examines the history of the FCC's data policies and the ways in which those policies have benefited the Internet. Key FCC policy decisions have included:
  - Fostering the development of an interconnected telecommunications network that ensured near universal availability of a reliable and affordable telephone system over which data services could be offered.
  - Determining through the *Computer Inquiry* proceedings that computer applications offered over that network were not subject to regulation, giving rise to the unregulated growth of the Internet.
  - Exempting enhanced service providers from the access charges paid by interexchange carriers, helping drive the availability of inexpensive dial-up Internet access.
  - Deregulating the telecommunications equipment market while requiring carriers to allow users to connect their own terminal equipment, helping to foster the widespread deployment of the modem and other data equipment tools that can be easily attached to the public switched network.
  - Implementing flexible spectrum licensing policies that permit innovative uses of wireless data services, leading to the development of wireless Internet applications.
- As the Commission moves into the next century, it must continue to take the necessary steps, as it has in the past, to ensure that communications networks and Internet services that rely on those networks will continue their dynamic and vibrant growth. Fundamental lessons learned from the Commission's thirty year deregulatory approach towards data networks include:
  - Do not automatically impose legacy regulations on new technologies,
  - When Internet-based services replace traditional legacy services, begin to deregulate the old instead of regulate the new; and
  - Maintain a watchful eye to ensure that anticompetitive behavior does not develop, do not regulate based on the perception of potential future bottlenecks, and be careful that any regulatory responses are the minimum necessary and outweigh the costs of regulation.

## I. The Internet, Openness, and the Marketplace

Much as the steam engine revolutionized industry in the 18<sup>th</sup> century, electricity changed the way we lived in the 19<sup>th</sup> century, and the circuit-switched telephone system shrank distance for voice communications in the first part of the 20<sup>th</sup> century, the Internet has radically altered the way we live in the last decade of this century. The Internet has created the information revolution, and it is on its way to becoming the single most important communications tool in existence. The Internet exercises enormous influence on the commercial, educational, and social future of this country. According to one survey, nearly 80 million Americans are online today, with a total of 100 million Americans expected online by the end of the year 2000.<sup>1</sup> They are shopping, researching investments, making travel plans, expanding their educational horizons, and interacting with one another in an online community.

The growth of the Internet is nothing short of explosive, driven by the invention in this decade of the World Wide Web, which gives consumers a user-friendly platform from which to access content in the online world. In 1993, the year the first commercial web browser hit the consumer market, there were 1.3 million computers linked to the Internet. In four short years, that number reached over 16 million,<sup>2</sup> and an estimated 80 million Americans are online today.<sup>3</sup> Americans are using the Internet to communicate with each other like never before, as email has become the communications medium of choice for millions of users.<sup>4</sup> And the Internet is an unprecedented educational tool as well. Thirty-five percent of U.S. schools had access to the Internet in 1994. By 1998, 51 percent of the nation's public school instructional rooms – not just schools, but individual classrooms – had Internet access.<sup>5</sup> School children are using the Internet to explore far off places by interacting with peers around the globe and bringing educational materials to their desktops from thousands of miles away. And their parents are using the Internet for commerce. Commercial activity on the Internet in this country, estimated to be over 100 billion dollars by the end of this year, is expected to more than double next year.<sup>6</sup> In all, the “Internet economy” generated 300 billion dollars, and was responsible for 1.2 million jobs, in this country in 1998.<sup>7</sup>

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<sup>1</sup> Intelliquest, *cited at* Nua Internet Surveys, [http://www.nua.ie/surveys/how\\_many\\_online/n\\_america.html](http://www.nua.ie/surveys/how_many_online/n_america.html).

<sup>2</sup> Hobbes Internet Timeline, located at <http://www.isoc.org/guest/zakon/Internet/History/HIT.html>.

<sup>3</sup> According to the Department of Commerce's recently released *Digital Divide* report, 32.7% of Americans are online today. *See Falling Through the Net: Defining the Digital Divide*, Department of Commerce, National Telecommunications and Information Administration, at 43 (rel. July 1999) (“Digital Divide”).

<sup>4</sup> 80% of Americans who use the Internet use it to send email. *See id.* at 40.

<sup>5</sup> “Internet Access in Public Schools and Classrooms: 1994-98,” National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement (rel. Feb. 1999). The survey defined “instructional rooms” as “classrooms, computer or other labs, school libraries, and media centers.”

<sup>6</sup> Forrester Research figures, cited at [http://www.nua.ie/surveys/analysis/graphs\\_charts/comparisons/ecommerce\\_us.html](http://www.nua.ie/surveys/analysis/graphs_charts/comparisons/ecommerce_us.html).

<sup>7</sup> *1999 Internet Economy Indicators*, Cisco Systems, located at <http://www.internetindicators.com/features.html>.

The Internet's success can be attributed to several ingredients, but none are as important as the market forces, investment, and competition that have driven its growth. The Internet is a loose interconnection of tens of thousand of networks that communicate using a common communications protocol. Every user that accesses the Internet becomes part of it. The most important technical feature of the Internet is its openness, which allows any user to develop new applications and to communicate with virtually any other user. This openness is driven by the sharing of that common communications protocol: IP, the Internet protocol, developed by early Internet pioneers. No one owns the Internet protocol, no one licenses its use, and no one restricts access to it. IP is available for all to use, and the explosion of Internet applications, from online commerce and medicine to educational and social tools, demonstrates the wide range of individuals and companies taking advantage of the openness of the Internet.

But the Internet is much more than just a common language. The Internet is a community, and users need to move in and out of that community with ease. The Internet has grown up over this country's telephone lines, a technological development that has made it possible for virtually any American to join the online community. Because of the vast expanse of telephone penetration in this nation,<sup>8</sup> and because of the openness of that network, the Internet has exploded. Every American with a phone line and a computer can be part of the Internet. The phone network has historically been open in two senses: phone customers are permitted to access any Internet service provider of their choosing, and those customers are permitted to attach their own equipment to the phone line, allowing them to use modems to transform their phone lines into their own information superhighways.

Open access across the telecommunications network has driven the deployment of innovative and inexpensive Internet access services. The average cost of basic telephone service to most residential consumers is between 13 and 29 dollars per month (an average of 20 dollars per month across the country last year).<sup>9</sup> Hundreds of Internet service providers offer unlimited dial-up Internet access (no hourly fees) over that inexpensive phone line for less than 20 dollars per month. Indeed, Internet service providers themselves utilize this same phone network to offer an amazing array of Internet services to customers, and the affordable use of the telephone network has allowed these providers to offer inexpensive access to the Internet to virtually all Americans. Once on the Internet, the interconnection of this nation's communications networks allows Internet users to communicate with virtually all other users, around the nation and the world. The Internet's "killer apps," email and the World Wide Web, developed and flourished by using our nation's phone lines.

In sum, the growth and continued success of the Internet, and the ability of market forces to sustain and encourage that growth, can be attributed to one basic attribute: the openness of both the Internet and the underlying telecommunications infrastructure. The

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<sup>8</sup> According to the Commerce Department, over 94% of U.S. homes owned telephones in 1998. See *Digital Divide* at 2.

<sup>9</sup> See Tracy Waldon, Federal Communications Commission, *The Industry Analysis Divisions' Reference Book of Rates, Price Indices, and Expenditures for Telephone Service* at 4-6 (rel. July 1998 ).

Internet Protocol ensures that all Internet users can speak a common language, and this nation's communications highways, operated under the supervision of the FCC, ensure that the Internet has a platform over which it can access the world. To the extent that the Internet has relied on the openness of this nation's communications infrastructure to reach all corners of this nation, this ingredient in its success has not been an accident. The FCC has taken numerous steps since the early days of the telecommunications data services industry three decades ago to permit competitive forces, not government regulation, to drive the success of that industry. As discussed in greater detail below, the success of the Internet today is, in part, a direct result of those policies.

The FCC's goal for three decades has been to ensure that all users of data services, like the Internet, have access to those services over our nation's communications infrastructure. The story of the Commission and its role in the development of the Internet<sup>10</sup> highlights the benefits of the FCC's early deregulatory efforts to facilitate the growth of computer applications offered over the public telecommunications network. As discussed in greater detail below, the Commission determined that computer-based services offered over telecommunications facilities should not be subject to common carrier regulation, and in so ruling the Commission set forth the necessary unregulated landscape for the growth and development of the Internet. As the Internet has matured over the last three decades, the Commission has acted in numerous ways to ensure that this incredible network of networks continued to develop unregulated. Equally important, the Commission has also ensured universal access to the ubiquitous telecommunications network on which the Internet relies to reach millions of users across America.

This paper provides a brief examination of the FCC's contributions to the rapid expansion and success of the Internet. The Commission does not, and should not, take credit for the success of the Internet beyond the role it has played in providing fertile ground for the growth and development of data networks over the nation's communications infrastructure. This paper highlights the distinction drawn by the FCC between the unregulated Internet and the regulated telecommunications network, a crucial decision that helped foster the dramatic expansion of computer applications offered over telephone lines. Finally, it briefly examines convergence issues that raise new questions about the proper role of the FCC in the Internet age and the fundamental lessons the FCC has learned in the last three decades, with the goal of sparking a dialogue on how such issues should be addressed. Above all, present day questions about the FCC's role in the Internet are best informed by an examination of the Commission's thirty-year tradition of "unregulating" the data services market.

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<sup>10</sup> Of course, the most notable federal government contributions to the creation and development of the Internet have been those of the Department of Defense and the National Science Foundation, whose myriad contributions are beyond the scope of this paper.

## II. Unregulated data and deregulated equipment 1960s-1970s: Computer Inquiry and Carterfone

In September of 1969, a small team of computer pioneers from the Massachusetts-based computer firm Bolt, Beranek, and Newman (BBN) installed a prototype packet switch<sup>11</sup> called an Interface Message Processor (IMP) at the University of California – Los Angeles. By the end of 1969, three more IMPs were in place at U.C. Santa Barbara, the Stanford Research Institute at Stanford University, and the University of Utah. BBN's team linked the IMPs, Honeywell 516 servers with a mere 12 kilobytes of memory, together by telephone lines. The researchers then set about testing the ability of the network to carry data between the computers. The Internet had an inauspicious debut: the first packetized data, carried between IMPs at Stanford and UCLA, crashed the system. As the sixties came to an end, computer processing and telecommunications facilities, married in a brilliant network configuration with common protocols, gave birth to the Internet.<sup>12</sup>

Three years before these historic events, the Federal Communications Commission foresaw the marriage of computer and telecommunications technologies and commenced a formal inquiry into the use of computer-based services over telephone lines.<sup>13</sup> By opening the inquiry, the Commission sought to explore the regulatory and policy issues presented by the convergence of these technologies. Predicting that the future would bring the convergence and interdependence of computers and communications, the Commission recognized the difficulty of separating the two into discrete categories. The Commission noted the importance of the burgeoning data industry in the opening paragraph of the inquiry, foreshadowing the very attributes of the Internet that would make it such a success.

The modern-day electronic computer is capable of being programmed to furnish a wide variety of services, including the processing of all kinds of data and the gathering, storage, forwarding, and retrieval of information -- technical, statistical, medical, cultural, among numerous other classes. With its huge capacity and versatility, the computer is capable of providing its services to a multiplicity of users at locations remote from the computer. Effective use of the computer is, therefore, becoming increasingly dependent upon communication common

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<sup>11</sup> Packet switches take information that is partitioned into small packets and route them to their destinations. Packet switches will route their payloads over the best available pathway, so that packets of data with the same destination may take different transmission paths to get there. Circuit switches, on the other hand, establish a single dedicated transmission pathway for the transportation of information.

<sup>12</sup> For a list of useful timelines and histories of the Internet, visit the Internet Society (ISOC) web page at <http://www.isoc.org/internet-history/>.

<sup>13</sup> *In the Matter of Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities*, 7 FCC 2d 11 (1966) (*First Computer Inquiry*).

carrier facilities and services by which the computers and the user are given instantaneous access to each other.<sup>14</sup>

The Commission sought information on technological advances in the computer industry, asking commenting parties to discuss the innovative new services that would combine common carrier facilities with computer processing capabilities. Most importantly, the Commission asked if the policies and objectives of the Communications Act of 1934<sup>15</sup> would best be served by permitting computer services to evolve in a free competitive market, rather than subjecting them to regulation under the Act. By the time BBN developed the first email program in 1972, the Commission had already issued its initial decision in the *Computer Inquiry* and had begun the process of “unregulating” the data service industry.

### *Computer Inquiry*

The FCC’s first *Computer Inquiry*, opened in 1966, generated a significant response to the Commission’s request for comment on the interdependence of computers and communications services and facilities. The Commission issued a tentative decision in 1970, followed by a final decision in March of 1971.<sup>16</sup> Before discussing its conclusions in the final decision, the Commission made note of the significant effect the mere opening of the Computer Inquiry had on the development of competition and the reduction of prices in the common carrier marketplace.

For example, the Commission noted that AT&T in early 1970 had filed a voluntary tariff revision that reduced the minimum rate period for use of the public switched network from 3 minutes to 1 minute, in response to the computer industry’s request for more flexible minimum usage periods that reflected the short, bursty nature of packetized data traffic.<sup>17</sup> In addition, AT&T reduced its message toll service rates, permitting more economical transmission of data across the public switched telephone network (PSTN). The Commission also made note of the steps it was taking to encourage new entrants into the telecommunications marketplace to provide competitive voice and data transmission services. For example, in 1969, the Commission permitted Microwave Communications, Inc., (now MCI WorldCom) to enter the intercity private line market, thus offering the public, as well as data service providers, a wider range of telecommunications services than provided by then monopoly provider AT&T.<sup>18</sup>

On the access side of the network, business customers began to seek inexpensive options for reaching the long distance carriers. The development of competitive providers of access to the long distance network, a market that would grow into the expansive competitive access provider (CAP) market of the 1980s, helped to keep private

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<sup>14</sup> *First Computer Inquiry*, 7 FCC 2d 11, ¶ 1 (1966)

<sup>15</sup> The 1934 Act created the Federal Communications Commission for “the purpose of regulating interstate and foreign commerce in communication by wire and radio . . .” 47 U.S.C. § 151.

<sup>16</sup> See *First Computer Inquiry*, Tentative Decision, 28 FCC 2d 291 (1970); *First Computer Inquiry*, Final Decision and Order, 28 FCC 2d 267 (1971).

<sup>17</sup> See *First Computer Inquiry*, First Report and Further Notice of Inquiry, 17 FCC 2d 587, 590 (1969).

<sup>18</sup> See *Microwave Communications, Inc.*, 18 FCC 2d 953 (1969).

line prices down by providing an alternative to the incumbent LEC for access to the telecommunications network. Inexpensive private lines meant companies offering data services could purchase telecommunications transport for those services at reasonable prices. For consumers, more choice in telecommunications services meant better access to data services offered over phone lines.

The Commission recognized that its Computer Inquiry was particularly important because the data processing industry “has become a major force in the American economy,” and the industry “cannot survive, much less develop further, except through reliance upon and use of communication facilities and services.”<sup>19</sup> The Commission proceeded to address the two issues it considered of fundamental importance to the nascent data industry: (1) are computer data processing service providers subject to common carrier regulation; and (2) should common carriers that provide data processing services themselves be subject to regulations that prevent them from discriminating against competing data service providers?

The Commission answered the first question in the negative. While concluding that the Communications Act gave the FCC wide discretion to regulate any services offered by wire or radio, the Commission began its inquiry by looking to the basic purpose of the Act and the regulatory mandate it granted. The Act, the Commission noted, directed the FCC to remove barriers to entry when such barriers unlawfully restricted free enterprise, but did not require the FCC to assert and exercise jurisdiction merely because an activity could be construed as falling within the parameters of the Act.<sup>20</sup> As the D.C. Circuit concluded in *Philadelphia Broadcasting*, the FCC is “entitled to some leeway in choosing which jurisdictional base and which regulatory tools will be most effective in advancing the Congressional objective” of the protection of the public interest.<sup>21</sup>

After examining the record developed through its Inquiry, the Commission concluded that the public interest would not be served by regulation of data processing services. The Commission found “ample evidence” of the widespread availability of data processing services, indicating “no natural or economic barriers to free entry into the market for these services.”<sup>22</sup> The market for data services would continue to flourish, the Commission determined, in the existing competitive environment. As discussed in further detail below, so long as the underlying telecommunications network, over which data services would “travel,” remained healthy and robust, data services themselves should be free from regulation. Thus, data processing services were “unregulated” from the outset, permitting the data industry to develop innovative services exempt from the numerous common carrier requirements of Title II of the Communications Act.

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<sup>19</sup> *First Computer Inquiry*, Final Decision and Order, 28 FCC 2d at ¶ 7. The Commission had previously defined “data processing” as “the use of a computer for the processing of information as distinguished from circuit or message-switching.” ‘Processing’ involves “the use of the computer for operations which include, *inter alia*, the functions of storing, retrieving, sorting, merging and calculating data, according to programmed instructions.” *First Computer Inquiry*, 28 FCC 2d at Subpart F.

<sup>20</sup> *First Computer Inquiry*, Tentative Decision, 28 FCC 2d at ¶ 18.

<sup>21</sup> *Philadelphia Television Broadcasting Co. v. FCC*, 359 F.2d 282, 284 (D.C. Cir. 1966).

<sup>22</sup> *First Computer Inquiry*, Tentative Decision, 28 FCC 2d at ¶ 20.

The issue of provision of data services by common carriers presented more serious competitive concerns for the Commission. The Commission determined that the participation of common carriers in the data processing market would benefit consumers by offering them innovative new services at lower prices.<sup>23</sup> The Commission was concerned, however, that common carriers would compete unfairly against other unaffiliated data service providers in two ways. First, the Commission noted that data processing services required common carrier facilities and services as necessary inputs, and that common carriers that offered their own data services would have the ability and incentive to discriminate against unaffiliated data service providers by denying them access to fairly priced telecommunications services. Second, the Commission noted that common carriers might improperly cross-subsidize their unregulated data processing services with rate-regulated common carrier revenues.

The Commission addressed these discrimination and cross-subsidization concerns in the *Computer Inquiry* proceeding by requiring common carriers seeking to offer data services to offer such services through a separate affiliate.<sup>24</sup> Such a separation of communications and data service activities constituted a reasonable means, the Commission concluded, of permitting such carriers to offer data services. The Commission required common carriers to serve their data processing affiliates and competitors equally in all respects, so that the carrier's affiliate could not receive preferential provisioning intervals, service quality, or maintenance. Thus, common carriers were permitted to enter and compete in the data market, but with safeguards in place to ensure that competing data providers had nondiscriminatory access to the underlying communications components of their service offerings.

The Commission continued its examination of these issues in the *Computer II* proceedings, opened in the 1970s. In *Computer II*, the Commission focused on the need to develop a workable categorical definition of both regulated telecommunications services and unregulated data services. The result: the creation of the categories of "basic" and "enhanced" services. The Commission defined the term "basic service," which referred to common carrier telecommunications offerings, like telephone service, as a common carrier offering of a pure "transmission capacity for the movement of information."<sup>25</sup> The Commission defined "enhanced services" as:

services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, code, protocol, or similar aspects of the

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<sup>23</sup> *First Computer Inquiry*, Final Decision, 28 FCC 2d at ¶ 11.

<sup>24</sup> *Id.* at ¶ 12 *et seq.* The Commission later eliminated the separate affiliate requirements in *Computer III*, determining that a series of non-accounting safeguards would serve the same non-discrimination policy without requiring physical separation of services. The Ninth Circuit Court of Appeals remanded the *Computer III* order to the Commission with instructions to further explain its decision to lift structural separation. *See California v. FCC*, 4 F.3d 1505 (1993).

<sup>25</sup> *In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, 77 FCC 2d 384, 419 (1980) (*Computer II Final Decision*).

subscriber's transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information.<sup>26</sup>

Present day examples of enhanced services include voice messaging, protocol processing, alarm monitoring and electronic publishing, as well as Internet access services. Enhanced services are often thought of as “basic service plus;” in other words, they combine a basic service, like telephone service, with an enhancement, like a computer processing or storage service. For example, the telephone service used to access an interactive voicemail system is a regulated basic service, while the voicemail system, which combines the telephone service with computer storage facilities, is an unregulated enhanced service. This distinction is discussed in greater detail in the next section.<sup>27</sup> In sum, though, *Computer II* saw the Commission reiterating its commitment to regulating only the common carrier “basic” transmission service offerings while continuing to exempt enhanced services from common carrier regulation. The Commission in *Computer II* continued to require common carriers that offered enhanced services to provide those services through a separate affiliate, based on the same concerns about discrimination and cross-subsidization expressed in the *First Computer Inquiry*.

The next step in the Commission's *Computer Inquiry*, the *Computer III* proceeding, saw the replacement of the separate affiliate requirement for common carriers offering data services with a model of nonstructural safeguards, such as accounting safeguards, that permitted common carriers to offer enhanced services on an integrated basis, *i.e.*, within the regulated telephone company. Even as the Commission eschewed the separate affiliate model for common carrier data service offerings in favor of nonstructural safeguards, the fundamental principle of nonregulation of data services remained intact.<sup>28</sup> In addition, the Commission continued to require common carriers to unbundle their basic service offerings from their enhanced service offerings. The Commission also maintained the requirement on common carriers, first established in the initial *Computer Inquiry*, to make basic services available to competing enhanced service providers at tariffed rates. For the Commission, the main purpose of *Computer III* was to establish a deregulatory means of ensuring that common carriers and non-common carriers alike could compete fairly in the market for data services.

The practical effect of the Commission's decision not to regulate data processing services has been nothing short of explosive. Early Internet pioneers utilized data processing services over telecommunications facilities to inter-network computers across

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<sup>26</sup> 47 C.F.R. § 64.702(a).

<sup>27</sup> In 1996, Congress effectively replaced the FCC's basic and enhanced terminology with “telecommunications” and “information” service categories. The Commission has noted that “telecommunications services” and “basic services” appear to extend to the same services, as do “information services” and “enhanced services.” For a more detailed discussion, *see Federal-State Joint Board on Universal Service*, Report to Congress, 13 FCC Rcd 8776 at ¶¶ 33-48 (1998).

<sup>28</sup> The Commission recently modified certain of the requirements placed on Bell Operating Companies pursuant to *Computer III* in order to streamline the reporting and filing obligations placed on those companies. *In the Matter of Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services*, 13 FCC Rcd 6040 (1998).

great distances. The use of a common protocol,<sup>29</sup> TCP/IP,<sup>30</sup> permitted the transmission across telephone lines of data from end users on virtually any computer network. In the 1980s, the Internet was primarily an educational and research tool used for electronic mail, file transfers, and newsgroups. In the 1990s, the Internet would explode with the development of the World Wide Web and the first web browsers, software used to navigate the web. The worldwide connection of disparate networks over the Internet, most connected via telecommunications lines, and increasingly over wireless technologies and cable networks, has made that explosive growth possible. And the FCC's early recognition that regulation of data services as common carrier offerings would inhibit flexibility in the development and deployment of these already competitive services was a crucial component of that growth.

*Basic vs. Enhanced: What does it mean?*

The difference between regulated communications services and unregulated data services has often given rise to confusion as to exactly which aspect of communications services the FCC regulates. This confusion is particularly evident in the present-day discussion of Internet services, where rumors of imminent FCC regulation of the Internet surface frequently. As the public debates the future deregulatory role of the Commission in an age of convergence, it is particularly important to understand the conceptual basis of the distinction between basic and enhanced services.

A useful way to think about the distinction between basic and enhanced services is an analogy to the nation's oil pipelines, storage facilities, and the refineries that rely on pipelines to transport oil. Oil pipelines are bare transport mechanisms that carry oil from, for example, ship to storage facility, often across great distances. The pipelines take oil in at one end, and transport that oil to the destination of the customer's choosing. The pipeline is a "dumb" transmission mechanism that does not interact with its cargo.

In the case of a data service, like a dial-up Internet access service, for example, there are two components involved. First, the consumer purchases local telephone service, the equivalent of the empty pipeline, from the phone company. This purchase entitles the customer to put its "oil," i.e., voice or data, into the pipeline, and the telephone company will transport it to the user's chosen destination. Second, the consumer purchases Internet access from an Internet Service Provider (ISP). The ISP takes data placed in the pipeline by the end user and performs computer processing on that data. Using the oil analogy, imagine a pipeline that has a ship at one end (the end user), a storage facility at the other end (the Internet), and a refinery in the middle. Oil is transported via the pipeline from ship to refinery, where the pipeline offloads the oil; the refinery transforms the oil into gasoline; and the pipeline then carries the processed oil to the storage facility. The pipeline still performs no more of a function than the transmission of its cargo: it is not responsible for the changes the cargo has undergone.

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<sup>29</sup> Protocols are rules that communications networks follow to determine the format and speed, for example, of data transmissions.

<sup>30</sup> TCP/IP, the Transmission Control Protocol/Internet Protocol allows disparate networks to communicate with each other and share data with the use of a common language.

The ISP is the equivalent of the refinery. Thus, when the user dials in to the ISP and establishes a modem connection, the telephone line is the transmission path. The end user transmits data over the telephone line to the ISP, the ISP modifies that data, and the telephone line carries that data to its destination. When the data reaches its destination, the telephone line “unloads” it, and prepares to carry back to the end user whatever data has been requested. In the case of Internet access, the end user utilizes two different and distinct services. One is the transmission pathway, a telecommunications service that the end user purchases from the telephone company. The second is the Internet access service, which is an enhanced service provided by an ISP. The telephone service is the basic service; the Internet access service, offered over the telephone service, is the “basic service plus” protocol processing and other computer offerings, so it is an enhanced service. The ISP provides the end user the capability of sending, retrieving, and storing data, as well as transforming data to different protocols to allow the end user to interact with other computer networks that speak other “languages.” These functions are separate from the transmission pathway over which that data travels. The pathway is a regulated telecommunications service; the enhanced service offered over it is not.

#### *Competitive Customer Premises Equipment*

At about the same time the Commission launched its first *Computer Inquiry*, it released a short order addressing the complaint of Thomas F. Carter and his company, the Carter Electronics Corporation, against AT&T.<sup>31</sup> In 1959, Carter invented a device, which he named for himself, that permitted users of mobile radio systems to interconnect their landline telephone with the radio system to permit mobile and fixed users to communicate with each other. AT&T advised its customers that the Carterfone, if used in conjunction with an AT&T telephone, would subject the end user to penalties pursuant to AT&T’s FCC tariff number 132, which provided that:

No equipment, apparatus, circuit or device not furnished by the telephone company shall be attached to or connected with the facilities furnished by the telephone company, whether physically, by induction or otherwise . . . .

Carter filed a private antitrust suit against AT&T, and the District Court referred the matter to the FCC.

The Commission concluded that AT&T’s tariff was unreasonable and discriminatory and ordered the restrictive tariff provisions stricken. The Commission was troubled by the tariff provision that would have permitted end users to install AT&T-manufactured equipment with exactly the same functionality offered by the Carterfone, but not the Carterfone itself. The Commission determined that a customer desiring to improve the functionality of the telephone network by interconnecting a piece of

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<sup>31</sup> *In the Matter of Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968).

equipment not manufactured by the phone company should be permitted to do so, so long as that equipment does not harm the network.

The principle of consumer usage of non-telephone company manufactured equipment with the public switched telephone network, outlined by the Commission in Carterfone, would later be codified as Part 68 of the FCC's rules. Part 68 was first adopted in 1975 as part of the Commission's WATS rulemaking,<sup>32</sup> in response to telephone company slowness in modifying tariffs to permit consumers to attach their own equipment to the public network. Part 68, which addresses connection of terminal equipment<sup>33</sup> to the public telephone network, permits consumers to connect equipment from any source to the public network if such equipment fits within the technical parameters outlined in Part 68. Competitive manufacturers of equipment were able, by means of the Commission's equipment registration and certification procedures, to build and deploy an incredible variety of voice and data equipment for use with the public network, without seeking prior permission from either the Commission, or more importantly, the monopoly telephone companies.

Through Carterfone and Part 68, the Commission opened the door to manufacturers of devices that interconnected with the telephone network and offered value-added services and capabilities. Most important for the growth and development of the Internet, the Commission's deregulation of customer premises equipment, or CPE, cleared the way for the rapid deployment of the modem. The modem allows any consumer with a computer and a telephone line to access data services, requiring no network alterations by the telephone company. Residential modem use, in turn, has driven the growth of Internet applications as consumer use of the Internet has increased. In fact, without Part 68, users of the public switched network would not have been able to connect their computers and modems to the network, and it is likely that the Internet would have been unable to develop.

As the application of Moore's law<sup>34</sup> to computer processing speeds witnessed an exponential growth in computing capabilities, the modem followed suit. Analog modem speeds rose from 300 baud to 28.8 kilobits/second, and then to today's nearly standard 56 kilobits/second.<sup>35</sup> Digital modems and codecs,<sup>36</sup> using such technologies as digital subscriber line (DSL),<sup>37</sup> promise multiple increases in speed that will create demand for even more innovative Internet-based resources and tools. As a result, consumers will

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<sup>32</sup> *Proposals for New or Revised Classes of Interstate and Foreign Message Tolls Telephone Service (MTS) and Wide Area Telephone Service (WATS)*, 56 FCC 2d 593 (1975).

<sup>33</sup> Terminal equipment refers to telephones and other equipment (modems and answering machines, *e.g.*) attached to the customer end of the telephone line.

<sup>34</sup> Moore's law holds that the processing speed of computers doubles approximately every 18 months. It is named for Gordon Moore, a co-founder of Intel.

<sup>35</sup> It is important to note that very few 56 kbps modem users actually attain such a high speed in actual usage.

<sup>36</sup> Codec = coder/decoder. Modem = modulator/demodulator.

<sup>37</sup> DSL technology takes advantage of those frequencies on a copper telephone line that are not used for the provision of voice services and, using advanced modulation techniques, transports broadband data services over those frequencies to the home.

continue to be exposed to an endless variety of Internet-based applications that meet their increased bandwidth capabilities.

The Carterfone decision enabled consumers to purchase modems from countless sources, to install and use the modem without permission from the telephone company, and to use these modems to take advantage of an array of data services offered by a diverse assortment of service providers over their home telephone service. Without easy and inexpensive consumer access to modems, the Internet would not have become the global medium that it is today.

### **III. The unregulated data market of the 1980s and 1990s: Universal Service and the ESP Exemption**

#### *Effect of Universal Service*

Since its creation, the FCC has operated under a congressional mandate of ensuring that common carriers offer service to all that desire it at reasonable rates and terms.<sup>38</sup> Since the enactment of the Communications Act of 1934, the Congress, the states, and the FCC have established a system of universal service that ensures the availability of affordable basic telephone service to all Americans. Universal service policies not only have obvious economic and social benefits for society, they also have had an incalculable impact on the Internet. Although the Commission has never regulated the Internet itself, it has helped to ensure its growth by fostering, through universal service, the availability of the public telephone network, the network via which the Internet reaches into millions of American homes and businesses.

The universal service system is designed primarily to ensure that low-income and rural consumers have access to local phone service at reasonable prices.<sup>39</sup> Before the passage of the Telecommunications Act of 1996 (1996 Act), universal service at the state and federal levels was a mixture of implicit and explicit subsidies.<sup>40</sup> Local telephone companies were permitted to price services offered to interexchange carriers, as well as certain intrastate services, above cost, with this implicit subsidy applied to rural and high cost phone service to provide residents in those areas with affordable local service. In the 1996 Act, Congress directed the FCC to include schools, libraries, and rural health care providers as beneficiaries of the universal service system.<sup>41</sup> In general, universal service funding ensures that rural telephone customers do not pay the actual cost of phone service, which could be hundreds of dollars more than the subsidized rate that the Universal Service fund makes possible. In large measure, this funding mechanism is responsible for the very high levels of telephone subscriber rates in America.

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<sup>38</sup> 47 U.S.C. § 201.

<sup>39</sup> 47 U.S.C. § 254(d), (e).

<sup>40</sup> Examples include the high cost fund, Lifeline, and Link-Up. The interstate access charge system also provided implicit universal service funding support.

<sup>41</sup> See 47 U.S.C. § 254. Enhanced service providers are not required to contribute to the universal service funding mechanism because they are not considered to be “telecommunications carriers.” *Federal-State Joint Board on Universal Service*, 12 FCC Rcd 8776, ¶¶ 788-90 (1997).

Combined with other common carrier regulations, such as the mandatory interconnection of all telecommunications carriers,<sup>42</sup> universal service helps create low cost accessibility to the telephone network. The availability of reliable and universally accessible telephone service is, in turn, the gateway to the Internet. With schools, libraries, and rural health care providers able to afford the telecommunications facilities they need to access the Internet, the Internet becomes even more accessible to all Americans.

### *The ESP Exemption*

For the Internet, the development of a broadly accessible, high quality phone network meant virtually universal access for end users. As use of the Internet grew, data service providers became Internet Service Providers, offering dial-up access to the Internet for consumers with a phone line, a computer, and a modem. But long before the explosion of ISPs, even before the invention of the World Wide Web, the FCC took action that would eventually help pave the way for the nationwide growth of ISPs. In the early 1980s, the FCC determined that enhanced service providers (ESPs) would be exempt from access charges. Had the Commission decided differently, the tens of millions of Americans today who enjoy unlimited use of the Internet for around \$20 a month, and who invest, shop, learn, and otherwise benefit from home Internet access, might never have experienced this extraordinary tool.

In order to offer service to consumers, enhanced service providers purchase local exchange services at business line rates from local exchange carriers. For example, Internet service providers generally charge customers a flat monthly fee for access to the ISP via a local telephone call. The ISP purchases business telephone lines from a local exchange carrier, and the ISP's customers dial into a modem bank, generally located at the ISP's premises, over these telephone lines. At the same time, interexchange carriers (IXCs), the nation's long distance telephone companies, also use local telephone company facilities. In order to originate and terminate long distance calls, IXCs purchase "access services" from local exchange carriers. Access services include usage-sensitive access charges, which are per-minute charges that IXCs pay to both the originating and terminating local telephone companies for each minute a long distance call is in progress.<sup>43</sup>

In 1983, the Commission addressed the applicability of access charges to enhanced service providers.<sup>44</sup> The FCC answered the question of whether ESPs had to purchase access services from local telephone companies. Were they found to be subject to access charges, ESPs would be responsible for per-minute charges for any services they offered to customers over common carrier facilities, forcing the ESPs to pass along those usage charges to their customers. The Commission concluded that because ESPs

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<sup>42</sup> Pursuant to section 251(a) of the 1996 Act, all telecommunications carriers must "interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers." Section 251(c)(2) imposes additional interconnection obligations on incumbent LECs.

<sup>43</sup> See generally 47 C.F.R. § 69.1 *et seq.*

<sup>44</sup> *MTS and WATS Market Structure*, 97 FCC 2d 682, 711-22 (1983).

were not subject to common carrier regulation, and they did not use the local exchange network in a manner analogous to IXCs, they should be treated as end users rather than carriers in their usage of the network. The Commission noted that ESPs purchase telephone exchange services, typically voice grade business lines, at business rates and pay interstate subscriber line charges as end users, and it concluded that ESPs should not have to pay access charges as well. On the one hand, the imposition of flat rate end user charges meant that ESPs would pay their fair share for their use of the telecommunications network, because the common carriers providing transmission generally pass universal service costs on to consumers through such charges. On the other hand, the absence of per-minute measured usage charges assessed on ESPs had enormous implications for the Internet.

Over 6,000 Internet service providers (ISPs) today offer dial-up service to the Internet, and over 95% of Americans have access to at least four local ISPs.<sup>45</sup> Although America Online, with over 18 million worldwide members, dominates the ISP field, millions of Americans rely on small “one POP”<sup>46</sup> or medium-sized ISPs for their service, ISPs that may serve several hundred or fewer customers. Accessing an ISP through a non-metered telephone call allows consumers to attain affordable access to the Internet. ISPs can purchase the business lines they need to offer service from any local telephone company.<sup>47</sup> That so many thousands of ISPs offer service in this country at relatively low rates is evidence of the positive impact of the ESP exemption on that field.

Contrasting the American ISP market with that in Europe provides additional insight into the effect of the FCC’s ESP exemption and the promotion of competition in the telecommunications marketplace. In the United Kingdom, for example, ISPs may offer a flat rate for monthly service, but end users are subject to per-minute charges for local dial-up connections to that ISP, resulting in a relatively expensive Internet experience for most consumers. Just as importantly, users are conscious of the fact that the meter is “ticking” as they browse the web. In the U.S., end users whose ISPs are located within their local calling area generally pay a flat monthly fee to that ISP and are not charged per-minute rates for the local call to the ISP. Adding to the expense of Internet service in the UK, leased lines can cost upwards of \$64,000 a year for a mere 1 megabit/second of bandwidth because of the absence of vibrant competition, tens of thousands of dollars more than in the U.S.<sup>48</sup> The combination of the high price of

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<sup>45</sup> Downes, Thomas and Shane Greenstein, “Do Commercial ISPs Provide Universal Access,” (Dec. 1998), available at <http://skew2.kellogg.nwu.edu/~greenste/research/papers/tpcrbook.pdf>.

<sup>46</sup> POP stands for Point of Presence and refers to the number of local nodes for dial-up access that the ISP has deployed.

<sup>47</sup> Although business telephone lines may feature metered usage rates (for intraLATA toll calls, for example), such per-minute charges are only assessed on outgoing, not incoming calls, and thus dial-up ISPs, which receive calls from customers dialing in to modem banks, would not be subject to such charges. Although ISPs connect to the PSTN by purchasing a local connection, in order to avoid forcing ISPs to pay above-cost per minute charges, the Commission has found that the service provided to ISPs by telephone companies is an interstate service. See *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Inter-Carrier Compensation for ISP-Bound Traffic*, FCC No. 99-38 (rel. Feb. 26, 1999).

<sup>48</sup> Baguey, Richard, “An Insider’s Look at the UK Internet Industry,” *Boardwatch Magazine*, May 1999 at 94.

telecommunications services provided to ISPs and the measured usage charges imposed on end users has meant significantly lower Internet usage rates in the UK, and in similarly situated European countries, than in the U.S. In this country, for example, the ISP market generated over 15 billion dollars in income in 1998, compared with only 4 billion for the entire European ISP market.<sup>49</sup> This is one reason why UK policy makers are considering changing the way British consumers are charged for Internet access.

One final note: the ESP exemption is not, despite persistent rumors to the contrary, at risk. One of the most prevalent rumors about the FCC is the myth, occasionally circulated on the Internet, that the FCC is set to impose long distance charges on the Internet. This rumor circulated heavily recently when, in early 1999, the Commission issued its decision addressing reciprocal compensation payments for dial-up Internet calls.<sup>50</sup> As the Commission made clear, that decision addressed the limited issue of compensation exchanged between local telephone companies for terminating local calls and did not revoke, or even address, the ESP exemption. Rumors of imminent application of per-minute charges on dial-up Internet accounts are untrue.

#### **IV. Recent Developments**

##### *Fostering Competitive Broadband Deployment*

Building on three decades of policy, the Commission has made numerous decisions in recent years that continue to have a positive impact, direct or indirect, on the growth and development of the Internet. The list of recent actions is long, but a brief examination of some of the more notable decisions indicates the efforts of the FCC to ensure that consumers continue to have access to a wide variety of innovative high-speed data services from a multitude of service providers.

- In April 1998, in response to congressional direction, the FCC released a report on the Commission's progress in implementing the universal service provisions of the 1996 Act.<sup>51</sup> In the report, the Commission reaffirmed its long-standing determination that basic services (referred to as "telecommunications services" in the 1996 Act) and enhanced services (referred to as "information services" in the 1996 Act) were separate and distinct categories of service. Telecommunications services are regulated common carrier services, and information services are not. As such, the Commission concluded, information service providers are not required to make direct contributions to the universal service fund, as telecommunications carriers are required to do. This action preserved the unregulated status of Internet Service Providers.

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<sup>49</sup> *1999 Internet Economy Indicators*, Cisco Systems, located at <http://www.internetindicators.com/features.html>.

<sup>50</sup> *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Inter-Carrier Compensation for ISP-Bound Traffic*, FCC No. 99-38 (rel. Feb. 26, 1999).

<sup>51</sup> *In the Matter of Federal-State Joint Board on Universal Service*, Report to Congress, 13 FCC Rcd 8776 (1998).

- In October 1998, the Commission issued an order and proposed rulemaking addressing the deployment of advanced services by telecommunications carriers.<sup>52</sup> Advanced services offer consumers high speed, high capacity communications pipelines that can carry data more quickly and more efficiently than traditional narrowband dial-up and circuit-switched networks. The Commission clarified that advanced services are telecommunications services, because they provide a basic transmission path from the end user to a service provider. As such, advanced services are subject to Title II regulation. By clarifying that advanced telecommunications services are common carrier services subject to the interconnection and unbundling obligations of Title II, the Commission helped encourage increased facilities-based and resale deployment of advanced services over incumbent carriers' networks, providing high-speed service offerings that ISPs can combine with Internet access to provide broadband Internet connectivity to consumers.
- In April 1999, the Commission issued an order and proposed rulemaking addressing collocation and line sharing issues.<sup>53</sup> Specifically, the Commission adopted several measures to ensure that competitive providers of advanced services have access to the space in incumbent telephone company offices they need in order to offer innovative telecommunications services to consumers. In addition, the Commission explored line sharing and loop management issues that would help ensure that advanced services are available from the widest possible variety of providers. These decisions that prevent incumbent dominant local carriers from creating barriers to entry are helping to speed the deployment of competitive broadband telecommunications services, offering consumers more choice and better service.
- In late 1998, the Commission addressed tariffs filed by certain incumbent telephone companies for their digital subscriber line (DSL) services, a type of advanced service.<sup>54</sup> DSL is a high speed telecommunications service that offers consumers the ability to access data services at speeds of up to 50 times the traditional 56 kbps dial-up modem. The Commission concluded that DSL services were properly classified as interstate telecommunications services and should be tariffed at the federal level. This level of regulatory certainty is assisting carriers in speeding their deployments of high speed telecommunications services by providing a consistent forum for regulatory issues related to service deployment. These broadband telecommunications services are now being used by ISPs to provide high speed Internet access to consumers.

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<sup>52</sup> *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, 13 FCC Rcd 24012 (1998).

<sup>53</sup> *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, FCC 99-48 (rel. Mar. 31, 1999).

<sup>54</sup> *See, e.g., GTE Telephone Operating Companies Tariff No. 1*, 13 FCC Rcd 22466 (1998).

- The Commission has acted on several requests for waivers of its Part 68 CPE rules to permit the testing and deployment of innovative new data equipment. For example, the Commission recently permitted Nortel to demonstrate how its “One Meg” modem would provide beneficial services to consumers without harming the public telephone network. By permitting flexible deployment of innovative data equipment, the Commission encourages manufacturers to create and market new equipment for consumers to use in accessing the Internet at high speeds.

These recent decisions evince a continuing effort on the part of the FCC to encourage service providers, equipment manufacturers, and end users to develop and deploy innovative new data services.

*Beyond the phone network: The Internet over Wireless, Cable, and Mass Media*

Wireless

As we look to the future of technology and the Internet, applications are spreading across communications media, from the telephone network and beyond. For example, wireless Internet solutions have taken hold in the last several years. Since the early 1990s, the FCC has recognized the need for flexible use of the wireless spectrum and has licensed commercial mobile radio service (CMRS), including personal communications service (PCS) providers, without restricting their ability to use the spectrum for data services. The Commission also grants wireless multichannel-multipoint distribution system (MMDS) and local multipoint distribution system (LMDS) operators flexible use of their spectrum for data services. Thus, the FCC opened the door for wireless providers to develop innovative data services for consumer use. Indeed, products like Ricochet, Metricom’s wireless modem service that currently offer 28.8 kbps access to the Internet, are a direct result of that flexibility. MCI WorldCom’s recent decision to make a substantial investment in Metricom promises an increased focus on wireless technologies that provide an alternative to wireline broadband services.<sup>55</sup> MCI WorldCom and Sprint, among others, are also purchasing wireless cable providers in an effort to expand their wireless local loop capabilities.<sup>56</sup>

Numerous satellite providers are planning to enter the broadband residential market in the next several years. Loral’s Cyberstar, Hughes’ Spaceway, Lockheed Martin’s Astrolink, SkyBridge, and Teledesic are just a few of the satellite-based technologies that promise broadband services to customers that may otherwise not receive land-based services.<sup>57</sup> Broadband provider Tachyon.net is currently testing a two-way satellite based service that would provide high-speed Internet access across a footprint encompassing all of the U.S. and Europe by the end of 1999. Such services

<sup>55</sup> See “MCI WorldCom Invests in Metricom,” CNET News.com (June 21, 1999), available at <http://www.news.com/News/Item/0,4,0-38104,00.html>

<sup>56</sup> Indeed, the Commission continues to adopt more flexible spectrum usage policies for broadband service providers. See “FCC Revisits Licensing and Service Rules for 39 Ghz Band,” News Release (rel. July 14, 1999), available at [http://www.fcc.gov/Bureaus/Wireless/News\\_Releases/1999/nrw19029.html](http://www.fcc.gov/Bureaus/Wireless/News_Releases/1999/nrw19029.html).

<sup>57</sup> *Report on Advanced Telecommunications Capability*, FCC 99-5, Report No. CC 99-1 at ¶ 60.

would be of particular benefit to rural consumers and those in the developing world, who may be too far from a telephone company central office to access xDSL, or may not be served by cable modem services.

### Cable

Cable modem deployment is beginning to bring high speed access to the Internet over a broadband pipe that traditionally has been used only for video program delivery. Like xDSL services, cable modems utilize an existing pipe into the home (in this case, coaxial cable) in combination with electronics at the customer's premises and the cable company's offices to offer high bandwidth capacity to residential users.

As companies like @Home and Roadrunner deploy service across the country, the Commission has determined in two separate proceedings in early 1999 that it would not impose any regulation on cable Internet services at this time.<sup>58</sup> The competitive, market-driven strategy that the Commission has embraced in the cable arena is the same market-driven approach that has guided the Commission's policy in the Internet sphere for three decades: the market, not the government, should bring broadband to all Americans. This FCC policy has important implications for the ongoing deployment of cable modems. A deregulatory approach to cable modem deployment is aimed at permitting this nascent market to flourish without governmental interference.<sup>59</sup> Rather than risk hindering cable Internet service deployment in its early stages by imposing a potentially inappropriate regulatory model, the Commission has determined that the marketplace should address early deployment issues while the FCC monitors the ongoing deployment closely. At mid-1999 it appears that this policy is working, with nearly one million cable modems deployed, up from only 500,000 at the beginning of the year.

### Digital Television

With the rollout of digital television (DTV) well underway, broadcasters are exploring numerous different applications to offer consumers, including data services. In assigning DTV frequencies to broadcasters, the Commission hoped that innovative data services might become part of the DTV offerings. As such, the Commission did not impose strict limitations on DTV spectrum usage, leaving the door open for broadcasters to offer Internet-based applications. Although the potential data uses of DTV have yet to be fully explored, the FCC's flexible DTV rules allow for further development and eventual deployment of innovative data services.

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<sup>58</sup> *Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Tele-Communications, Inc., Transferor to AT&T Corp., Transferee*, FCC No. 99-24 (rel. Feb. 18, 1999); *Report on Advanced Telecommunications Capability*, 14 FCC Rcd 3160 (1999). In the AT&T/TCI proceeding, the Commission determined that the equal access issues raised by parties did not provide a basis for conditioning, denying, or designating for hearing any of the requested license transfers or authorizations.

<sup>59</sup> *See Remarks of William E. Kennard, Chairman, FCC, before the National Cable Television Association*, Chicago, Illinois, June 15, 1999, available at <http://www.fcc.gov/Speeches/Kennard/spwek921.html>.

## V. Looking to the future: Resisting Government Intervention

Although the FCC has a long tradition of encouraging the growth and development of the Internet by nonregulation, deregulation, and certain affirmative market-opening policies, there are frequent calls from many sources for the FCC to become more heavily involved in Internet regulation. Moreover, the distinction between the traditionally regulated and unregulated sectors of the information industry is blurring, providing new challenges to the FCC's telecommunications/information services structure. The challenge to the FCC, other government agencies, and the affected industries they touch, is to enter the era of convergence in a way that furthers the Commission's longstanding goal of promoting competition, not regulation, in the marketplace.

### *Effects of Convergence*

Incumbent LECs have been suggesting for years that the Commission's longstanding ESP exemption should be eliminated. These parties argue that enhanced service providers use the telephone network exactly as long distance companies do, originating and terminating interstate traffic while using the access network of the local telephone company. In particular, U S WEST filed a petition with the Commission in April 1999 asking for the Commission to declare that providers of Internet voice telephony services are not enhanced service providers, despite their use of the Internet Protocol, and should be subject to the access charge regime.<sup>60</sup> U S WEST and others argue that the provision of a phone to phone service, even one that uses the Internet, should be treated as a telecommunications service. ISPs counter that they should not be subject to access charges, and that they already contribute to universal service through subscriber line charges and business line charges. The distinction between telecommunications and information services is, U S WEST argues, most difficult to maintain when voice applications are at issue.

The issue of Internet telephony suggests a greater pressure on the FCC in the age of the Internet: the rapidly expanding convergence of media. No longer are cable companies strictly video programmers. They offer video, data, and even voice service over traditional cable television facilities. Wireless service providers offer voice and data capabilities. Indeed, even within a particular technology, the traditional distinction between information and telecommunications services is blurring. Internet telephony is one example. As more services are offered that use the Internet Protocol in a packet-switched environment, it becomes increasingly difficult to determine where the telecommunications service ends and the information service begins. Despite this difficulty, however, it remains important for the FCC to maintain the unregulated status of data services offered over telecommunications facilities. One area where this distinction between telecommunications and information services is particularly important is the Internet backbone.

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<sup>60</sup> See *Petition of U S WEST Inc. for Declaratory Ruling Affirming Carrier's Carrier Charges on IP Telephony*, filed April 5, 1999.

The Internet backbone carries Internet traffic between Internet service providers over transmission facilities that traverse the nation and the globe. Backbone providers, including MCI WorldCom, Sprint, and PSINet, exchange traffic with one another at public network access points, or NAPs, and also at private points of interconnection. As the Commission stated in the *Universal Service Report to Congress*, Internet service providers that lease telecommunications capacity from common carriers, in order to operate an Internet backbone, are not themselves common carriers, but are providers of information services.<sup>61</sup> Thus, for example, backbone providers negotiate arrangements for the transport and exchange of Internet traffic, called either “peering” or transit arrangements depending on their terms, which are private contractual agreements.<sup>62</sup> In contrast, telecommunications carriers interconnect with one other for the exchange of telecommunications traffic pursuant to Title II, which obligates all carriers to interconnect pursuant to reasonable terms and conditions.<sup>63</sup> The Internet backbone “travels” over telecommunications facilities, traditionally fiber optic cables. The Internet backbone is regulated differently than circuit-switched voice traffic because they are two different types of services. Much as Internet access services ride on top of local exchange services, the Internet backbone rides on top of ATM, frame relay, or similar high-speed telecommunications services. The underlying telecommunications services, when provided by common carriers, are regulated; the information services that travel over those telecommunications services are not. Because the Commission has made the important policy determination that such data services should not be regulated, the Internet backbone is treated as an unregulated information service.

Another example of the complexities convergence will bring is in the area of universal service. Questions may arise on the issue of universal service fund contributions when the converging service offerings muddy the distinction between those revenues that give rise to contribution obligations and those that are exempt. For example, a service provider may offer a bundle of voice, video, and data services, some offered via the Internet Protocol and some offered over more traditional communications architectures. This situation may test current rules about which revenue is included in computing contributions to support universal service.

### *The Public-Private Internet*

Both government and the private sector have played important roles in the growth of the Internet. The Internet began as a government-funded research project. The Department of Defense, seeking a means of fostering secure and protected communications between institutions conducting defense research, funded the early computer projects that gave birth to the Internet. The Defense Department, and later the National Science Foundation (NSF), continued to fund the construction of this research network for two decades, until 1995 when the NSF privatized the Internet backbone,

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<sup>61</sup> *Universal Service Report to Congress* at ¶ 67.

<sup>62</sup> Peering arrangements involve the exchange of traffic between backbone providers without either provider paying the other. Transit arrangements involve a payment from one backbone provider to the other for the transit of packets.

<sup>63</sup> See 47 U.S.C. § 251.

leading to an explosion of commercial Internet applications. The government has nurtured this important technology, stepping back in recent years to permit the energy and inventiveness of the Internet community to take over. Research institutions and private industry, meanwhile, continue their partnership to improve the Internet with the Internet II project, a high speed backbone linking educational and research facilities.

## **VI. Conclusion: Lessons from “Unregulation”**

From the FCC’s initial determination that data processing should not be subject to regulation, through the development of a universally accessible and affordable telephone network, and to the flexibility granted to data service providers over new technologies, the FCC has played an important role in the Internet’s expansion. The seeds of the powerful economic and social force that is the Internet have been carefully germinated over the last three decades, and the FCC has taken positive steps to cultivate the Internet and ensure it has an open and free growth.

The principal challenge for the future comes from the convergence of technologies, and the growing use of the Internet protocol for the delivery of numerous services traditionally offered over legacy technologies. Where the distinction blurs between the regulated and the unregulated, between traditional categories of service and new methods of delivering traditional services, the Commission’s challenge is to maintain its deregulatory stance towards data services and the Internet. The Commission should be guided by the last thirty years of unregulation of data services and the lessons it has learned in formulating that important policy. The Commission has had a role to play in regulating the underlying communications services over which the unregulated Internet travels. But as the foregoing discussion of the Commission’s treatment of data services indicates, the FCC has met the introduction of new communications technologies with the right attitude: let the marketplace, not the government, pick the winners and losers among new services. The fundamental lessons learned from the Commission’s three decades of hand-off, deregulatory action towards data networks include:

- Don’t automatically impose legacy regulations on new technologies. Perhaps the most important contribution to the success of the Internet that the FCC has made has been its consistent treatment of IP-based services as unregulated information services. When innovative new IP communications services first entered the marketplace, the Commission had already firmly established its deregulatory approach. The FCC did not seek to apply legacy Title II regulations to the Internet as it developed and flourished – the first email programs in the 1970s, interactive newsgroups in the 1980s, and the World Wide Web in the 1990s all grew up over the nation’s telephone lines free from regulation. The next generation of Internet technologies should be treated in a similar manner. The Commission has followed this important principal in several readily apparent ways. For example, the FCC has not moved to impose broadcast regulations on Internet-provided streaming audio and video services. Traditional regulatory structures were designed to fit services in existence at the time of enactment. New technologies, while perhaps similar in appearance or in functionality, should not be stuffed into what may be ill-fitting regulatory categories

in the name of regulation. Rather, the Commission should continue the approach of studying new technologies and only stepping in where the purpose for which the Commission was created, protecting the public interest, demands it. The best example of this approach was the Commission's determination, in the *Computer Inquiry* proceeding, that the public interest did not require regulation of data services.

- When Internet-based services replace traditional legacy services, begin to deregulate the old instead of regulate the new. The Commission should not, and has not, respond to the advent of innovative category-challenging services by squeezing them into existing regulatory categories. Rather, the FCC should permit market forces to work without interference from inappropriate regulation. For example, the Commission has embraced the provision of wireless data services over a variety of technologies and spectrum categories. Rather than regulate such services, the FCC has, as noted above, provided a great deal of flexibility to licensees seeking to offer such services. The unregulation of wireless data services should be a model for the wireline world as well. As bypasses to the monopoly local network, like satellite, wireless, and cable, are increasingly available, and IP technologies over a variety of media make the single pipe into the home seem like the distant past, there will undoubtedly be calls for the Commission to step in and level the playing field. Any leveling that may be appropriate in the future should focus on having the Commission examine its existing rules that affect legacy providers and eliminate those that may be unnecessary in view of increased competition.
- Maintain a watchful eye to ensure that anticompetitive behavior does not develop, and be careful that any regulatory responses are the minimum necessary and outweigh the costs of regulation. As bypass networks and new technologies change the communications landscape, the Commission must be ever vigilant to prevent the creation or furtherance of bottlenecks that block free and fair access to essential facilities. As the steward of the communications public interest, the Commission must ensure that all players in the communications marketplace, including owners and users of telephone networks and cable systems, have a fair opportunity to compete. That goal should, and very often can, be accomplished without governmental regulation, by permitting market forces to work and shape the competitive landscape. The Commission should, of course, avoid regulation based solely on speculation of a potential future problem. But oversight by the FCC is crucial to ensure that market forces do not fail or are otherwise unfairly manipulated by inappropriate behavior by entities with market power. If a bottleneck should develop, the FCC's first step should be to question whether the costs of governmental intervention against that bottleneck would outweigh the benefits. The same question should guide any Commission examination of a potential tying arrangement – not every tying is unlawful, and the Commission should begin its inquiry with the potential harm to the public that may result from such an arrangement. In essence, the Commission's approach should be minimalist, only taking those steps that are directly necessary to solve the problem. Traditional methods of regulatory intervention may be available, but may not be necessary. Rather than imposing obligations on an entire industry, for example, the Commission could seek solutions

that address the specific problems posed by a particular bottleneck. For this reason, the Commission must continue to monitor the provision of access to Internet services to determine whether the market is working sufficiently to protect against anticompetitive behavior.

In 1966, the FCC opened the *Computer Inquiry* to examine the interrelationship of computers and communications, noting that “the growing convergence of computers and communications has given rise to a number of regulatory and policy questions within the purview of the Communications Act.”<sup>64</sup> This statement is just as true today as it was three decades ago. The convergence of today is still computer and communications, but increasingly the interrelationship of content and transport is challenging traditional regulatory categorizations. Where once data communications were offered “over” the voice network, the network of the future promises voice services as just another data offering. The FCC’s challenge is to maintain its hands-off approach to the Internet in an era when traditionally regulated services, such as voice telephony, are offered over traditionally unregulated mechanisms, like the Internet Protocol. The Commission’s instinct, as it has always been, should be to permit market forces to work, because competition leads to the widest variety of consumer choices.

The openness of the data communications marketplace, anchored by the Internet Protocol, has driven the growth of this incredible medium. The openness of the telecommunications network, mandated by the FCC, provided an architecture over which the Internet could reach into a majority of American homes and businesses. Even though there are calls from numerous sources for the FCC to regulate the Internet, the Commission has a thirty-year tradition of encouraging its open and unregulated growth. New challenges like the convergence of technologies will call for new solutions. The FCC must be prepared to maintain its commitment to fostering the most powerful and dynamic communications medium of the modern era.

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<sup>64</sup> *First Computer Inquiry*, 7 FCC 2d at 11, ¶ 2.